Poster presentation

THE USE OF ELECTRONIC MICROSCOPY IN ROOT APEX MORPHOLOGY OF MAXILLAR AND MANDIBULAR PREMOLARS

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Introduction: The success of apicotomy and nonsurgical root canal therapy are dependent on a thorough knowledge of the roots, root canal system and root apical morphology in order to locate all canals and properly clean, shape, and obturate the canal space in three dimensions.
Aim: The aim in the study was to determine the morphologic shape and position of the root apex and the major apical foramen in premolars of upper and lower jaw.
Material and method: A total of 200 human maxillar and mandibular premolars with completely formed apices were evaluated. Each root specimen was measured at each root apex by using a electronic microscopy and SEM analysis at magnification 20x - 500x. The anatomic parameters evaluated were the shapes of peripheral contours of major apical foramen (rounded, oval, asymmetric, semilunar) and the root apex (rounded, flat, beveled, elliptical). The location of root apex and major apical foramen were classified as center, buccal, lingual, mesial, or distal surface.
Results: The results of the internal canal morphology revealed that a single canal was present in 77% of the teeth. Two or more canals were found in 23% of the teeth studied. A single apical foramen was found in 80% of the teeth and 20% had two or more apical foramina.
Conclusion: The most common morphology of the root apex the round shape, followed by oval and the most common shape of the major foramen was round, followed by oval. The root apex was most commonly located in the center in all teeth followed by distal and buccal locations.